

Drainage Reports  
Abbreviated Water & Sewer Need Reports  
Water Study  
Wastewater Study  
Stormwater Waiver Application



**ACCEPTED**  
**CITY OF SCOTTSDALE**  
**TRANSPORTATION DEPARTMENT**  
**14-ZN-2016**

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DATE: 7/6/16

To: Jeff Scanlon  
SJJ Development

REVIEWER: *[Signature]*

Date: July 6, 2016

From: Jamie Blakeman, PE, PTOE

Job Number: 16.0880.001

RE: NEC of Scottsdale Road and Acoma Drive  
Transportation Impact and Mitigation Analysis



**EX-1005 6-30-19**

## INTRODUCTION

J2 Engineering and Environmental Design (J2) has prepared a Category I Transportation Impact and Mitigation Analysis (TI&MA) for the existing development located on the northeast corner (NEC) of Scottsdale Road and Acoma Drive in Scottsdale, Arizona. See **Figure 2**.

The objective of this Traffic Impact and Mitigation Analysis is to perform a trip generation comparison between the existing zoning (I-1) and the proposed zoning (C-3).

## EXISTING CONDITIONS

Currently, the site contains approximately 16,330 square foot facility. See **Attachment A** for the site plan.

The parcel is bordered by Scottsdale Road to the west, Acoma Drive to the south, and 73<sup>rd</sup> Street to the east.



**Figure 1 - Vicinity Map**





ACCEPTED  
CITY OF SCOTTSDALE  
TRANSPORTATION DEPARTMENT  
4-29-2016

DATE: 4/29/16

### STUDY ROADWAY SEGMENTS

**Scottsdale Road** is an urban major arterial as classified in the 2008 City of Scottsdale Classification Map and provides three through lanes for each direction of travel, along with exclusive left and right turn lanes. There is a raised median and a posted speed limit of 45 mph. According to the City of Scottsdale 2014 Average Daily Traffic (ADT) Volume map, the Scottsdale Road ADT is 41,000 vehicles per day between Thunderbird Road and Greenway Parkway.

**Acoma Drive** is an east-west roadway, classified as an urban minor collector east of Scottsdale Road (based on the 2008 City of Scottsdale Classification Map), which is within the City of Scottsdale's city limits. One lane is provided for each direction of travel with exclusive left turn lanes at the intersections with Scottsdale Road and 73<sup>rd</sup> Street. Acoma Drive terminates approximately 900 feet east of Scottsdale Road. To the west, Acoma Drive is classified as a collector roadway and is within the City of Phoenix limits. Two through lanes for each direction is provided with two-way left turn lane. The posted speed limit is 35 mph.

**73<sup>rd</sup> Street** is a north-south roadway that provides one lane for each direction of travel with a posted speed limit of 30 mph.



Figure 2 - Site Map

### PROPOSED DEVELOPMENT

The existing development consists of a 16,300 square foot building surrounded by a parking lot. See **Figure 2**.

There are three accesses to the proposed site. There is a right-in/right-out driveway off of Scottsdale Road, approximately 300 feet north of Acoma Drive. The second access is approximately 150 feet east of Scottsdale Road off of Acoma Drive. This is a full access driveway. The third access is off of 73<sup>rd</sup> Street, approximately 300 feet north of Scottsdale Road. This is a full access driveway as well.

### TRIP GENERATION (CURRENT I-1 ZONING)

The existing building is currently zoned for I-1 land uses and is currently occupied by two high turnover restaurants (Zoe's Kitchen and Pie Five) and a mattress store (Mattress Firm).

The existing trip generation was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 9th Edition*. The ITE rates and equations are based on studies that measured the trip generation characteristics for various types of land uses and are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

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The most appropriate ITE Trip Generation Land Uses (LU) for the existing restaurants and mattress store are High-Turnover (Sit Down) Restaurant (LU 932) and Furniture Store (LU 890). The 16,300 square foot facility was evenly split between the two existing land uses to estimate the existing trip generation. See **Table 1**. See **Attachment B** for the detail trip generation calculations.

**Table 1 - Trip Generation for Existing I-1 Zoning**

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
High-Turnover (Sit-Down) Restaurant	932	8.15	1,000 Sq Ft GFA	1,036	88	48	40	80	48	32
Furniture Store	890	8.15	1,000 Sq Ft GFA	41	1	1	0	4	2	2
TOTAL				1,078	89	49	40	84	50	34

**TRIP GENERATION (PROPOSED C-3 ZONING)**

This parcel is being proposed for rezoning from the I-1 (Industrial Park) to C-3 (Highway Commercial). The property is surrounded by I-1 (Scottsdale) zoning on the north, south and east and C-2 (Phoenix) on the west. These properties include a mix of light industrial, commercial service/retail and office uses. Various land uses are permitted under C-3 zoning, some of which include retail developments, office space, and restaurants. For the proposed C-3 zoning, half of the development was assumed to remain as High-Turnover (Sit Down) Restaurant, while the remaining half was assumed to be Specialty Retail Center.

Specialty retail centers are generally small strip shopping centers that contain a variety of retail shops and specialize in quality apparel, hard goods and services. Data is not provided for the AM peak hour for the Specialty Retail Center land use. Therefore, the AM peak hour equation and percentages for a Shopping Center were used for this calculation (LU 820). See **Table 2** and **Attachment B** for the detail trip generation calculations.

**Table 2 - Trip Generation for Proposed C-3 Zoning (Restaurant and Specialty Retail)**

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
High-Turnover (Sit-Down) Restaurant	826	8.15	1,000 Sq Ft GFA	386	34	21	13	41	18	23
Specialty Retail Center	932	8.15	1,000 Sq Ft GFA	1,036	88	48	40	80	48	32
TOTAL				1,423	122	69	53	121	66	55



Due to the intended land uses, the proposed development could also be evaluated as Shopping Center. Shopping centers are developments that contain integrated groups of commercial establishments that may contain retail buildings, restaurants, office buildings, and various other land uses. Trip generation for a 16,330 square foot building was calculated and is shown in **Table 3**. See **Attachment B** for the detailed trip generation calculations.

**Table 3 - Trip Generation for Proposed C-3 Zoning (Shopping Center)**

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Shopping Center	820	16.3	1,000 Sq Ft GFA	2,089	52	32	20	178	85	93
TOTAL				2,089	52	32	20	178	85	93

#### TRIP GENERATION COMPARISON

A trip generation comparison between trips generated by existing land use with I-1 zoning (8,150 sq. ft. high turnover restaurant and 8,150 sq. ft. furniture store) versus potential C-3 land uses are shown below.

**Table 4** compares the existing land use with 8,150 sq. ft. high turnover restaurant and 8,150 sq. ft. specialty retail, and **Table 5** compares the existing land use with a 16,330 square foot shopping center.

**Table 4 - Trip Generation Comparison (Existing vs. Restaurant and Specialty Retail)**

Land Use	ITE Code	Weekday	AM Peak Hour			PM Peak Hour		
		Total	Total	In	Out	Total	In	Out
Existing	932/890	1,078	89	49	40	84	50	34
High-Turnover Rest. & Specialty Retail	826/932	1,423	122	69	53	121	66	55
TOTAL		345	32	20	13	37	16	21

**Table 5 - Trip Generation Comparison (Existing vs. Shopping Center)**

Land Use	ITE Code	Weekday	AM Peak Hour			PM Peak Hour		
		Total	Total	In	Out	Total	In	Out
Existing	932/890	1,078	89	49	40	84	50	34
Shopping Center	820	2,089	52	32	20	178	85	93
TOTAL		1,011	-38	-17	-20	94	35	59





## SUMMARY

Two trip generation calculations for potential land uses with the proposed C-3 zoning were compared with the existing land use.

### *High Turnover Restaurant and Specialty Retail*

The proposed C-3 zoning assumed to be 8,150 sq. ft. of high turnover restaurant and 8,150 sq. ft. of specialty retail is anticipated to generate 345 more weekday, 32 more AM peak hour, and 37 more PM peak hour trips than the existing land use.

### *Shopping Center*

When the proposed C-3 zoning is assumed to be a 16,330 square foot shopping center, it is anticipated to generate 1,011 more weekday, 38 less AM peak hour, and 94 more PM peak hour trips than the existing land use.

According to the proposed site plan, two full access points will be provided, one along Acoma Road, and the other located along 73<sup>rd</sup> Street. With an exit only driveway located along Scottsdale Road. Due to the close proximity of Scottsdale Road, it is assumed that all vehicles accessing the development would utilize Scottsdale Road.

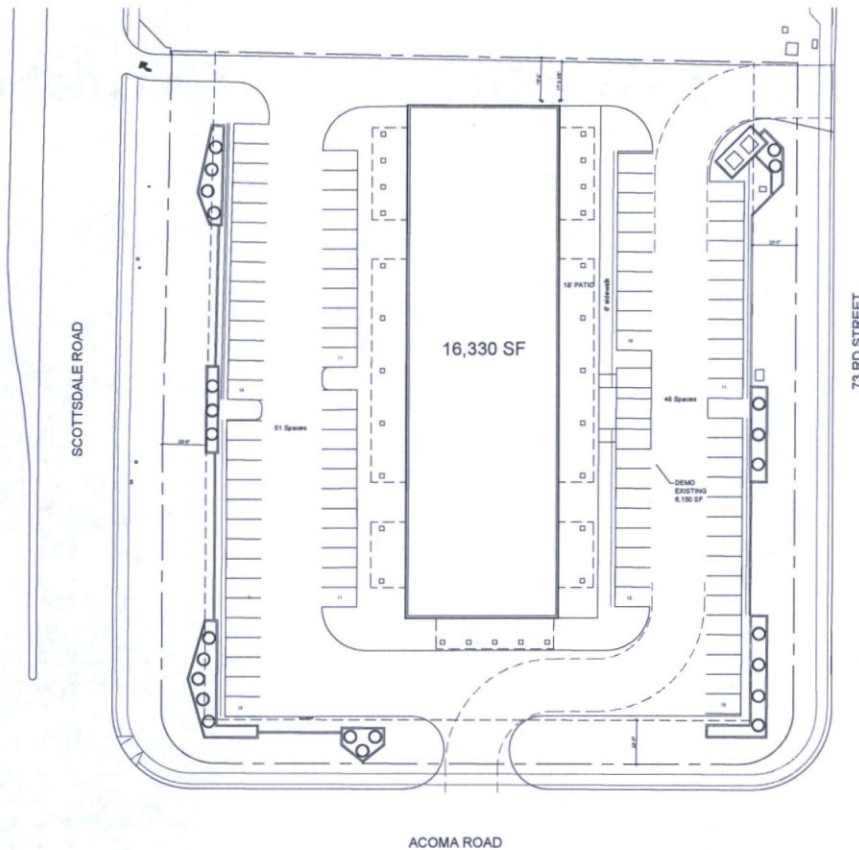
The proposed C-3 zoning with high turnover restaurant and specialty retail land uses would increase the weekday traffic volumes along Scottsdale Road by less than 1% (0.84%). As a shopping center, the weekday traffic volumes along Scottsdale Road increases by 2.5%.

**Therefore, the proposed C-3 zoning will have a minimal impact to the traffic operation along the adjacent roadway network.**



## **Attachment A - Site Plan**

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1 SITE PLAN  
SCALE: 1" = 30'-0"



SCALE: 1" = 30'-0"

## SITE DATA

BUILDING AREA	16,330 sf
PARKING REQUIRED - per Commercial Shopping Center	
8,165 sf Restaurant @ 1/300sf	28 spaces
8,165 sf Non-Rest @ 1/300sf	28 spaces
TOTAL REQUIRED	76 Spaces
PARKING PROVIDED	99 Spaces

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Scottsdale Road & Acoma Drive  
Scottsdale, Arizona

NOT FOR  
CONSTRUCTION

PROJECT NO. 13005  
DATE: APRIL 22, 2013  
DRAWN BY:

SITE PLAN  
SCALE: AS NOTED

A1.0





## **Attachment B - Trip Generation Calculations**



NEC Scottsdale Road and Acoma Drive

Completed: 01 6/20/2018  
Checked: JED 7/6/2018

TRIP GENERATION CALCULATIONS

Existing I-1 Zoning

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Avg Rate	% In	% Out	Avg Rate	% In	% Out	Avg Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out
High-Turnover (Sit-Down) Restaurant	932	8.15	1,000 Sq Ft GFA	127.15	50%	50%	10.81	55%	45%	9.85	60%	40%	1036	518	518	88	48	40	80	48	32
Furniture Store	890	8.15	1,000 Sq Ft GFA	5.06	50%	50%	0.17	69%	31%	0.45	48%	52%	41	21	21	1	1	0	4	2	2
TOTAL													1078	539	539	89	49	40	84	50	34

Proposed C-3 Zoning

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Fitted Curve	% In	% Out	Fitted Curve	% In	% Out	Fitted Curve	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out
High-Turnover (Sit-Down) Restaurant	932	8.15	1,000 Sq Ft GFA	127.15	50%	50%	10.81	55%	45%	9.85	60%	40%	1036	518	518	88	48	40	80	48	32
Specialty Retail Center*	826	8.15	1,000 Sq Ft GFA	T=42.78(X)+37.66	50%	50%	Ln(T)=0.61Ln(X)+2.24	62%	38%	T=2.40(X)+21.48	44%	56%	386	193	193	34	21	13	41	18	23
													1423	711	712	122	69	53	121	66	55

\*A.M. Peak Hour for Shopping Center Used for AM Calculations

Proposed C-3 Zoning

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Fitted Curve	% In	% Out	Fitted Curve	% In	% Out	Fitted Curve	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out
Shopping Center	820	16.3	1,000 Sq Ft GFA	Ln(T)=0.65Ln(X)+5.83	50%	50%	Ln(T)=0.61Ln(X)+2.24	62%	38%	Ln(T)=0.67Ln(X)+3.31	48%	52%	2089	1044	1045	52	32	20	178	85	93
													2089	1044	1045	52	32	20	178	85	93



